Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Chemical and Physical Changes Lab**

***EXPERIMENTAL QUESTION****:*

*How can we recognize whether a chemical or physical change has occurred?*

Station 1A: Paper

1. Use the scissors to cut your piece of paper into at least 6 pieces.
2. Record observations.
3. Recycle trash.

Station 1B: Paper

1. Place one of your pieces of paper on the watch glass.
2. Use a match to light the paper on fire.
3. Observe.
4. Throw away trash and rinse watch glass.

Station 1C: Starch and iodine

1. Place two full pipettes worth of corn starch solution into a test tube.
2. Use the other plastic pipette to drop 1 drop of iodine into the test tube.
3. Shake the test tube to stir the solution.
4. Observe all changes.
5. Rinse test tube and place in drying rack.

Station 2A: Magnesium sulfate and water

1. Use the scoopula to add a small amount of magnesium sulfate to the test tube.
2. Add water until the test tube is 1/3 full.
3. Use the glass stirring rod to stir vigorously.
4. Stir until all the magnesium sulfate is dissolved.
5. Observe.
6. Rinse test tube and place in drying rack.

Station 2B: Hydrochloric acid and magnesium

1. **PUT ON YOUR GOGGLES!!!**
2. Use the plastic pipette to transfer approximately 5 ml (a few centimeters) HCl into the test tube
3. Drop the strip of Magnesium into test tube with HCl.
4. Observe.
5. Rinse test tube and place in drying rack.

Station 3A: Food coloring

1. Fill two test tubes 1/3 full of water.
2. Add one drop of food coloring to each test tube (different colors).
3. Use the funnel to pour the contents of both test tubes into the third test tube.
4. Observe.
5. Rinse test tubes.

Station 3B: Candle wax

1. Use a match to light your candle.
2. Allow the candle to burn for 1 minute.
3. Blow out the candle and wait at least 1 more minute.
4. Record observations.

Station 4A: Sugar

1. Place a pea-sized amount of sugar in the aluminum evaporating dish.
2. Light your alcohol burner.
3. Use tongs to hold the evaporating dish over the alcohol burner.
4. Observe.
5. Blow out alcohol burner and throw away your evaporating dish.

Station 4B: Salt and water

1. Use the balance, scoopula, and weigh boat to measure out 1g of salt.
2. Add it to the test tube.
3. Add water until the test tube is ½ full.
4. Use the glass stirring rod to stir the solution until all of the salt has dissolved.
5. Rinse test tube.

Station 5: Salt and water

1. Use a plastic pipette to cover the bottom of your evaporating dish with a thin layer of salt water solution.
2. Light your alcohol burner.
3. Use tongs to hold the evaporating dish over the alcohol burner.
4. Observe.
5. Blow out alcohol burner and throw away your evaporating dish.

**Data Table**

| **Station** | **Observations** | **Chemical or Physical?** | **Explanation: How did you know it was chemical or physical?** |
| --- | --- | --- | --- |
| 1A: Paper |  |  |  |
| 1B: Paper |  |  |  |
| 1C: Starch and iodine |  |  |  |
| 2A: Magnesium sulfate and water |  |  |  |
| 2B: Hydrochloric acid and magnesium |  |  |  |
| 3A: Food coloring |  |  |  |
| 3B: Candle wax |  |  |  |
| 4A: Sugar |  |  |  |
| 4B: Salt and water |  |  |  |
| 5: Salt and water |  |  |  |

**Chemical and Physical Changes Lab Conclusion**

*Write a lab reflection that answers the following questions in complete sentences. You must write your answers on a separate sheet of paper.*

1. Summarize data
   * CLAIM/EVIDENCE/REASONING: Pick three examples of physical changes that you observed. Describe what happened and explain how you know that a physical change occurred.
   * CLAIM/EVIDENCE/REASONING: Pick three examples of chemical changes that you observed. Describe what happened and explain how you know that a chemical change occurred.
2. Error analysis: Was your data the exact same as everyone else’s? Probably not. Think of 2 reasons why your data might have been a little (or a lot) different.
3. Suggest at least 1 future question: what other tests would you have conducted if you had more time/equipment?

Station 1A: Paper

1. Use the scissors to cut your piece of paper into at least 6 pieces.
2. Record observations.

Station 1B: Paper

1. Pick up one of your pieces of paper using tongs.
2. Use a match to light the paper on fire.
3. Place the burning paper in the watch glass.
4. Observe.

Station 2A: Magnesium sulfate and water

1. Use the scoopula to add a small amount of Magnesium sulfate to the test tube.
2. Add water until the test tube is 1/3 full.
3. Use the scoopula to stir vigorously.
4. Stir until all the Magnesium sulfate is dissolved.
5. Observe.

Station 2B: Hydrochloric acid and magnesium

1. Use the plastic pipette to transfer approximately 5 ml (a few centimeters) HCl into the test tube
2. Drop the strip of Magnesium into test tube with HCl.
3. Observe.

Station 3A: Food coloring

1. Fill two test tubes halfway with water.
2. Add one drop of food coloring to each beaker (different colors).
3. Pour both test tubes into the third test tube.
4. Observe.

Station 3B: Candle wax

1. Use a match to light your candle.
2. Allow the candle to burn for 1 minute.
3. Blow out the candle and wait at least 1 more minute.
4. Record observations.

Station 4A: Sugar

1. Make a mini bowl out of aluminum foil.
2. Place a pea-sized amount of sugar in the mini bowl.
3. Light your candle.
4. Use tongs to hold the aluminum foil over the candle.
5. Observe.

Station 4B: Salt and water

1. Use the balance, scoopula, and weigh boat to measure out 1g of salt.
2. Add it to the test tube.
3. Add water until the test tube is ½ full.
4. Use the glass stirring rod to stir the solution until all of the salt has dissolved.

Station 5: Salt and water

1. Make a mini bowl out of aluminum foil.
2. Cover the bottom of your bowl with a thin layer of salt water solution.
3. Light your candle.
4. Use tongs to hold your mini bowl over the candle until all of the water has evaporated.
5. Record observations.